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REPORT

ON THE

Government Horticultural Gardens,

LUCKNOW,

FOR THE

YEAR ENDING 31ST MARCH 1904.

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ALLAHABAD:
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Hemendra Kothari

on 24 February, 2020

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No. $\frac{1899}{V-762}$ of 1904.

From

THE DIRECTOR OF LAND RECORDS AND AGRICULTURE,
UNITED PROVINCES,

To

THE CHIEF SECRETARY TO GOVERNMENT,
UNITED PROVINCES,
REVENUE DEPARTMENT,
NAINI TAL.

Dated Lucknow, the 1st of June 1904.

Sir

I have the honour to submit the report on the Lucknow Horticultural Gardens for the year ending 31st March 1904. The report gives a fair account of a satisfactory year's work.

2. In the concluding paragraph Mr. Ridley gives a brief summary of the progress made since he took charge of the gardens in 1878. It may fairly be said that no small share in the progress in the art of gardening made in these provinces is due to the assistance afforded by these gardens to the public and to the example set by Mr. Ridley himself; when he retires in November he will leave as his memorial not only a model nursery garden, but by far the most beautiful station in the provinces.

3. Acknowledgments are due to the donors enumerated in appendix B.

I have the honour to be,
SIR,
Your most obedient servant,
W. H. MORELAND,
Director.

REPORT on the GOVERNMENT HORTICULTURAL GARDENS, LUCKNOW, for the year ending 31st March 1904.

I.—INTRODUCTORY.

1. *Charge of the gardens.*—I have been in charge of the garden for the whole year. Under the authority of G. O. No. 1925/III, dated the 12th December 1902, I paid a visit to the Circuit House, Bareilly, but owing to the backward state of the building operations little could be done beyond considering a general plan for laying out the roads and lawns.

2. *Important administrative events.*—Plague interfered greatly with all work; many of the men were scared away by it, although no cases occurred in the garden. For some time it was difficult to get necessary watering done owing to want of hands. For several days all other work had to be suspended and every available man put on to work the wells.

3. *State of the Gardens.*—It is with great pleasure that I am able to report very considerable improvements have been carried out during the year. The collection of old tumble-down plant houses have been swept away and on the site an ornamental and commodious iron conservatory has been erected; this supplies a long felt want and affords suitable accommodation for the fine collection of plants which the garden has acquired.

Messrs. Jessop and Company of Calcutta were the contractors who supplied the materials and erected the conservatory, and the work does the firm credit.

The ground surrounding the conservatory has been cleared of rose beds and of other undesirable occupants and the space provided by these clearings has been levelled and grassed, effecting a vast improvement in this corner of the garden.

Necessary thinning and removal of trees and shrubs along the main drives has contributed to improved general effect. The main drive has been widened and metalled and grass borders established on each side; difficulties in securing kankar limited this needful work of road metalling, but I hope during the coming year to be able to get the whole of the remaining roads put into good order.

A water cart has been procured and a reservoir built for filling it, so the roads can now be kept watered.

A new house has been built for the garden chaudhry and a line of quarters for 12 of the under hands. These are outside the garden, but conveniently close to it. It will now be possible to clear away the gipsy-like structures which the men have provided themselves with inside the garden and which are objects of great untidiness. The restoration of the Sikanderbágh has necessitated the construction of a new bullock shed for housing the garden bullocks and a store-house for fodder; both are substantial brick buildings affording superior accommodation to that provided in the buildings vacated in the Sikanderbágh. A new piece of nazúl land was taken up for the erection of the above buildings, the whole of which are well placed and arranged for the health of the occupants and convenience of access to the garden.

Another important matter has been carried through during the year, *viz.* the acquisition of the guava orchards on the north side of the garden. Their inclusion in the area under the management of the garden increases that area by 14 acres; space is thus provided for needful extension, and it also admits of better control being exercised by excluding persons from nurseries and cultivated areas, which was not possible so long as these guava gardens were in the possession of a number of lessees who had the right of entrance at all times.

The great remaining want of the garden is suitable enclosure, and I understand there is a probability of this too being provided. The efficient control and protection of the garden and its valuable contents will then be possible, and with all that has been done last and to be completed in the current year, the garden will be a well equipped institution with good prospects of extended usefulness before it.

The office and seed store have been well provided with needful furniture and fittings, and the new store-house close to it provides ample room for storing and protecting tools, packing materials and the numerous articles connected with a garden largely devoted to the issue of seeds and plants.

New fernery.—The old thatched building known as "the bungalow" has been pulled down and the walls rebuilt for the purpose of being used solely for the growth of ferns; it is found that this class of plants do not thrive satisfatorily in a house of mixed plants, as they require special treatment and atmospheric conditions which can best be provided in a separate house.

The rose tunnel has been raised one foot higher throughout its entire length.

All the wells were cleaned out; a good deal of silt was found to have collected in them. So far as I know they had not been cleaned out since constructed in 1859-1860. The water supply has greatly improved since the cleaning was done.

Throughout the year more or less difficulty has been experienced in keeping the establishment at full strength; the under hands were constantly changing, and when extra labour was required it was difficult to obtain and generally at high rates. This made progress slow and difficult, specially with new work requiring extra hands.

The foregoing paragraphs show that the year has been one of work, progress and improvement. The garden generally is in good condition, the permanent fruit trees are in good general growth and health, and the nurseries are for the most part well stocked.

4. *Character of the season.*—The season was marked by abnormal conditions which were unfavourable to general horticultural work. The early portion of the hot weather was of the usual character, but it was most unusually prolonged; only a few showers fell in June and July, the monsoon proper not being established till the beginning of the second week in August. This prolonged period of dry hot weather was most trying to all classes of vegetation, and where the water-supply was at all defective trees, shrubs and tender plants suffered a good deal; the extra effort and labour entailed in keeping the garden sufficiently watered from wells through this additional period of drought and heat tried both man and beast severely.

The monsoon made up for its delay in arriving by continuing to an unprecedentedly late date in October. The heaviest and most continuous rain of the year fell in the first 10 days of October; heavy rains so late naturally caused great damage to all early sowing of vegetables and flowers, most of which were completly destroyed. Both garden and general field work were thrown back and delayed by the unseasonable rainfall, as new sowings of many crops became necessary. The cold season has been in complete contrast to that of last year; frosts were few and mild in degree; no injury was done by frost to crops or plants. The absence of rain of any note since October is affecting the vegetable world unfavourably.

II.—ACCLIMATIZATION AND OTHER EXPERIMENTAL WORK.

5. *Fruit and food producing trees and plants. Fruit crops*—The fruit crops were nearly all poor; the mango crop was the worst I ever remember; pine-apples were about an average number, but the fruits were mostly small and late in maturing owing to the want of sufficient rain in June and July. Limes were an average crop, but oranges yielded light crops. The peach and plum crops, too, were below average. Loquats and leechees gave fair yields, also figs.

Storing oranges.—An experimental trial was made of storing orange fruits, the object being to ascertain how long ripe oranges could be kept in a sound condition. Three kinds were experimented with, *viz.* Malta, Cintra and Sylhet. The last two have loose and rather thin skins, and no doubt for this reason they did not keep well; quite two-thirds of the fruits went bad by the end of June. The Malta proved fairly satisfactory, its thick skin proving valuable for keeping purposes,; the loss of Malta type fruits was much less than with the other two kinds, besides many kept sound and juicy till the beginning of August.

The fruits were collected and stored when ripe in February and March; they were simply placed in deal boxes, divided by wooden shelves or partitions, a single layer of fruit being laid in each shelf or division. The boxes were kept in a small room in the office which was opened once a week for the purpose of examining the fruit. Those who have abundant oranges and who wish to enjoy them in the hot weather may do so by following this plan.

Fruit nurseries.—The late arrival of the monsoon rains kept back demands for fruit trees till a late period of what is usually the planting season. There was, however, a good demand for fruit trees of all kinds, and the year's issue is not far behind that of last year. See Appendix C.

Vegetable garden.—The heavy rain in October did a large amount of damage by destroying early sowings of vegetables, and on this account many crops were much later than usual in coming into use. For some reason, atmospheric or climatical, the pea crop was an unprecedentedly fine one, for no special culture or treatment was given to cause the splendid crops produced. Clearly the excellence or otherwise of a crop does not entirely depend upon soil and culture.

The tomato disease showed itself but only in a mild form, and it was successfully combated and kept in check by sulphur powder dressing. A good crop of fruit has been gathered; seeds of such acclimatized vegetables as are in demand and can be grown with good results have been harvested and stored for distribution.

6. *Other trees and plants of economic value: Agava sisalana.*—There has been a good deal both of enquiry and demand for fibre-yielding plants of the Agava genus. All the young stock of Agava sisalana raised from suckers has been disposed of and also the whole of the bulbils yielded from an old plant that poled.

The issue has been plants 1,050, bulbils 4,350. More of each could have been disposed of if they had been available, and indents are booked for 10,000 bulbils.

Furcræa gigantea.—There has also been enquiry regarding Furcræa gigantea plants and 1,000 bulbils have been issued. It would seem that plantations of the above are being formed in various parts of India for fibre production.

Ocimum viride: reputed mosquitocide.—Considerable interest was awakened by the circulation of a report in the public papers to the effect that a plant had been found in East Africa which was an effective mosquitocide. A packet of seed of this plant was received from the Curator of the Botanical Station, Sierra Leone, in June last; it was sown at once, and from it some 200 plants were raised. There has been very little demand for it: only two small indents for it have been received. Its reputed protective power against mosquitoes has not been sustained; so far as I can see it is just as valueless for this purpose as the half a dozen other reputed cures which have been put forward at different times by hasty or ill-informed experimenters. The plant is a member of the basil or *Tulshi* family, several species of which, notably *Ocimum sanctum*, are very well known in India.

The species under report has longer leaves of a paler green colour than *Tulshi*: and is probably a stronger growing plant; like the other members of the genus it has a strong aromatic odour especially when bruised.

7. *Ornamental trees and plants.*—There was again a large demand for ornamental plants, trees and shrubs, the figures in this section reaching 17,367 against 14,979 last year. See Appendix C.

The total issue for the year of trees, plants and bulbs, etc., is 10,000 less than last year, due chiefly to fewer strawberry plants and bulbs having been sent out this year. The nurseries are well stocked with plants, etc., of all kinds, except Livistona palms; as explained last year all the available stock was sent to the Delhi Darbár, and there has not yet been time to raise a new stock of large plants; this will take several years to accomplish as palms are slow growing plants.

Chrysanthemums—An experiment was made of protecting chrysanthemum plants from the injurious effects of heavy and continuous rainfall by using a cloth covered shed to store the plants in during wet weather. There were fewer losses among the plants so protected than among those unprotected, but finally no advantage was gained as the protected plants became weakly and anæmic from want of light, and the flowers produced were far below those from exposed plants both in quality and quantity. The experiment was a failure. I am disposed to think the best results could be obtained by growing chrysanthemums under glass during the rains, but this of course means a good deal of expense.

Seeds.—There was a good demand for both vegetable and flower seeds, although the total number of packets and weight issued are both less than last year. The falling off in the number of packets is under flower seeds, and the decrease in weight issue is chiefly due to less issue of large and heavy seeds, as peas and beans. See Appendix C.

III.—FINANCIAL RESULTS.

See Appendix A.

8. *Receipts.*—The estimated receipts for the year were Rs. 18,000 and the actual receipts Rs. 19,294, or Rs. 1,294 over the estimate. By adding the value of plants, seeds, etc., issued free and at reduced rates, *viz.* Rs. 1,847, the total of the year's outturn amounts to Rs. 21,141, which shows an increase over last year's figures of Rs. 884.

See Appendix A.

9. *Expenditure.*—The sanctioned budget grant for the year was Rs. 19,428; to this a supplementary grant was made of Rs. 522 for contingencies and a special grant of Rs. 2,400 to buy out the lessees of the guava orchards. The total amount sanctioned was therefore Rs. 22,350, but as Rs. 71 lapsed, the total actual expenditure for the year was Rs. 22,279.

10. *Surplus or deficit.*—Comparing the total receipts and the ordinary expenditure of the year, a surplus or profit is shown in the year's working of Rs. 2,262. If, however, the extra grant of Rs. 2,400 for guava land and Rs. 1,000 for road metalling are added to expenditure, then a deficit occurs of Rs. 1,138 on the year's working. It may be noted that on the expenditure side the total includes two large items for special works, *viz.* Rs. 2,400 for guava land and Rs. 1,000 for metalling the roads. These are non-recurring charges, but for the year under report their inclusion on the expenditure side turns a substantial surplus or profit of Rs. 2,262 into a deficit of Rs. 1,138.

IV.—MISCELLANEOUS.

11. *Training of gardeners.*—This branch of the garden work remains as unsatisfactory as ever. The chief difficulty is failure to induce suitable boys to enter as garden apprentices. Apparently something better than the ordinary rates of pay is required to tempt boys to come and undergo a training, which when completed will gain them well paid appointements. Such a practice would of course be contrary to established usage elsewhere, but like other new developments this, too, seems to require some kind of extra stimulus to start it under way. Another hindrance, I fear, which perhaps has more to do with the dearth of candidates that one is inclined to suspect, is caste, and again jealousy on the part of the older hands, who have no desire to find themselves equalled or surpassed by promising boys. Such are generally made in innumerable petty ways to feel they are not wanted, and, finding things disagreeable, they resign.

Perhaps if the chaudhry and his assistants were given to understand that their promotion depended upon turning out so many apprentices per year, some of the hidden opposition and quiet persecution that goes on might cease and better results follow.

During the year no less than seven apprentices voluntarily left the garden; one was promoted to a post in the garden; eight new boys have been entertained. Twenty-two applications for trained mális were received during the year, none of which could be supplied.

NOTE.—This question is being considered separately.
W. H. MORELAND,
Director.

Subscribers.—The number of subscribers is fourteen, of which seven are first and seven second class. As the garden is to all intents and purposes a Government institution, this system of having subscribers may with advantage be done away with. For the most part new members join who are starting gardens for the purpose of getting them stocked with plants at reduced rates; when this is done they cease to be members. I would advise the abolition of membership.

12. *Arboriculture.*—No injury or loss was caused in the arboriculture nursery by frost or bad weather, but the destruction of the stock of young mango trees by frost the previous year had the effect of greatly reducing the year's distribution. Mango seedlings are the trees most in request, and owing to the above cause very few were available for issue during the year; the stock of this tree is again low this year, but this is due to the difficulty experienced in getting seed. The local mango crop this year having been a failure, the small number of 2,680 trees of all kinds was the year's output. Over 9,000 new trees of kinds were raised and the stock in hand is 12,512. The allotment for the year was Rs. 1,280, of which Rs. 1,000 was spent, a balance of Rs. 279 lapsing. The sale proceeds for the year amounted to Rs 192, which was paid to the Chairman, District Board.

Date plantation.—As previously explained this consists chiefly of eucalyptus trees.

Eucalyptus Citriodora.—The ground is very uneven and excessively sandy in some parts: owing to this, and the prolonged dry hot weather, a large number of the trees died; the west side exposed to the hot winds suffered most. The dead trees have been cut down and collected into lots and will be sold by public auction. By failing in this manner this particular species has proved to be incapable of resisting drought and so cannot be relied upon for permanent planting where water is not available in years of scanty rainfall.

The allotment for maintenance for the year was Rs. 350 and expenditure Rs. 323, the balance of Rs. 27 lapsing.

Exotic plantations.—There is nothing in connection with this which calls for special remarks. No additions were made to the trees under trial; a few have died. The following are details of the trees under trial;—

Names of trees under trial.	Number alive last year.	Number alive this year.	Remarks.
Antidesma dallachayna	2	2	Healthy; growth slow.
Bronssonetia papyrifera	4	4	Ditto; little growth.
Bambusa oliveriana	2	2	Ditto; doing well.
Biota Sp.	12	12	Fairly healthy; little progress.
Casuarina tenuissima	4	4	Ditto ditto.
Eucalyptus rostrata	17	15	2 dead; others sickly; a few healthy.
Eucalyptus cerbera	22	21	1 do; doing badly.
Eucalyptus tereticornis	44	44	A few doing moderately well; rest badly
Ficus triemanii	5	5	Doing fairly well.
Ficus tsiela	6	6	Ditto ditto.
Garcinia Roxburghii	6	6	Healthy; slow growth.
Leacuna glauca	5	4	1 dead; none doing well.
Maclura aurantiaca	4	4	Doing well
Melia Azadarach var umbraculiformis.	6	6	Healthy and doing fairly well.
Pterocarpus marsupium ...	4	4	2 doing well, and the other too poorly.
Pithecolobium saman	14	11	3 dead; rest in a decaying state.
Swietenia macrophylla	6	1	5 dead; the one living unhealthy.
Tecoma serratifolia	2	1	1 dead, the single remaining plant dying.

The allotment for the year was Rs. 100 and the expenditure Rs. 87; the balance of Rs. 13 lapsed.

Receipts were Rs. 24, which was paid to the Chairman, District Board.

13. *Flower show.*—As previously explained the late and heavy rainfall in October delayed and threw back general garden work, and the time thus lost was not regained the whole season. Owing to the general backwardness of most garden produce it was considered advisable to hold the annual flower show at a later date than usual, and the 5th of March was finally fixed as the most suitable date, and I am glad to say the results fully justified this decision, as the show was in all respects a most successful one, certainly quite as good as, if not the best, ever held here.

The collections of flowering annuals grown in pots were very fine, and the show of cut flowers was also good. Vegetables were shown in great quantity and for the most part were excellent in kind and quality.

My acquaintance with Lucknow flower shows goes back to 1875, and comparing the show of that year with the one of this shows what a vast amount of progress and improvement has been effected. If anyone were inclined to doubt or question the use and benefit of holding such shows, a full and complete answer in the affirmative is given by the splendid results of the present year's show. How much of the progress that has been made in local horticulture is due to the stimulating effects of competition at flower shows or to the training of a large number of skilled gardeners is not clear, but that very substantial progress has been made during the last 30 years is a matter beyond all possibility of doubt.

Financially the show funds are also flourishing; as before, they were furnished by public subscriptions and gate money, the total amounting to Rs. 802.

Rs. 524 were distributed in prizes, and miscellaneous expenses absorbed Rs. 224, the surplus of Rs. 54 being credited to the show fund, which now has a balance of Rs. 628.

14. *Conclusion.*—The first annual report on these gardens written by me was for the year 1878. As this is the last I shall probably write, I would venture to briefly compare the general progress and development there has been in income in that time. For that year the total receipts from garden produce amounted to Rs. 6,960, and as previously shown the income of this year is Rs. 21,141, or over three times what it was when I first took charge; the expenditure, too, has grown, but not in the same proportion; for 1878 it was Rs. 8,700, and this year, omitting extraordinary or special expenditure, it was Rs. 18,879, or a little more than double of what it was when I first took charge of the garden.

A return of plants and seeds was not then published as now in the form of Appendix C, so that a comparison cannot be made of the plants and seeds, &c., sent out; but the great increase in the receipts is ample evidence that great progress has been made in this as well as in all other branches of work connected with the garden.

M. RIDLEY,
Superintendent,
Government Horticultural Gardens,
Lucknow.

Digitized with financial assistance from

Hemendra Kothari

on 24 February, 2020

APPENDIX A.—(*See Report, paragraphs* 8 *and* 9.)

Statement showing the receipts and expenditure of the Government Horticultural Garden, Lucknow, for the year ending 31*st March* 1904.

Heads.	Actuals of 1902-1903.	Budget head for 1903-1904.	Actuals of 1903-1904.
1	2	3	4
RECEIPTS.	Rs.	Rs.	Rs.
Interest on Government notes	94	18,000	94
Rent of land	396		342
Subscription	240		204
Sale of garden produce	14,487		15,606
Miscellaneous	3,206		3,048
Total receipts	18,423	18,000	19,294
CHARGES.			
Superintendent	2,972	3,807	3,816
Establishment	5,015	5,708	5,109
Allowances	667	200	21
SUPPLIES AND SERVICES.			
Purchase of seeds and plants	4,262	3,580	4,398
Do. live stock	270	270	200
Feed of live stock	1,450	1,400	1,598
Purchase of manure	61	200	42
Maintenance of premises	9,855	1,500	3,900
Coolie labour	1,030	1,000	1,270
Contingencies	1,943	1,863	1,925
Total charges	27,525	19,428	22,279

APPENDIX B.

List of contributors to the garden during the year ending 31*st March* 1904.

Name of contributor.	Name and description of articles contributed.
Mrs. Tullock, Bridgmanganj	1 packet Stephanotis floribunda seeds.
Mrs. A. M. Gasper, Moradabad	1 plant of Amaryllis.
The Curator, Agricultural and Botanical Department, Sierra Leone.	1 packet Ocimum viridi seeds.
Babu Hira Singh, student Agricultural School, Cawnpore.	16 packets tree and shrub seeds collected in Sawaliks.
Major Newnham, Contonment Magistrate, Lucknow.	1 packet Ficus Australis seeds; 19 packets tree and shrub seeds from Australia.
F. Bartels, Esq., Australia	4 packets Clianthus Dampier in seeds; 1 case of orchids.
The Superintendent, Royal Botanical Garden, Calcutta.	10 kinds of palm seeds.
The Herbarium Keeper, Poona	1 packet of palm seeds.
The Superintendent, Government Botanical Garden, Saháranpur.	4 packets tree and shrub seeds; 14 shrub and ornamental plants; 1 packet tree seeds.
Dr. Bonavia, Westwood, Richmona, England.	1 packet strawberry grape seeds. 1 packet Apple (Yorkshire Beauty) seeds. 1 packet Gros Colmar grape seeds.
The Superintendent, Agricultural and Horticultural Society, Madras.	57 kinds of crotons. 4 shrub and ornamental plants.
The Secretary, Agricultural and Horticultural Society of India, Calcutta.	1½ lbs. Mesua ferria seeds; 1 packet tree seeds.
Ross Scott, Esquire, Lucknow	2 packets celeriac seeds.
F. Lincoln, Esquire, Barrister-at-Law, Lucknow.	1 packet pepper tree seeds.
The Head Curator, Botanical Garden, Gold Coast.	1 packet Ocimum viridi seeds.
The Director, Botanical Garden Sydney	9 kinds of palm seeds.
The Superintendent, Government Gardens, Cawnpore.	1 packet Ocimum viridi seeds.
Dr. A. Robertson Proschowsky, M.D., France.	20 packets tree and shrub seeds.
Babu Tribhawan Nath, F. R. H. S., M. R A. S., Gwalior State.	54 shrubs and other ornamental plants.